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ABSTRACT

An examination of existing data was conducted to determine the effects of different kindergarten options on subsequent academic achievement in French immersion programs. It was concluded that there was no evidence for any superiority in outcomes for full-day bilingual as compared to half-day French kindergarten. No clear trends emerged in the comparison of full-day bilingual vs. half-day English groups at the grade 1 level, although differences in French skills were apparent between these two groups in grades 2 and 3. These trends are interpreted as tentative evidence that exposure to French in kindergarten influences subsequent performance in French. Analysis of further studies confirmed this interpretation, although several studies indicated the possibility of students who did not experience French kindergarten closing the gap in French skills. Virtually no data were found that considered possible differential effects on half-day vs. full-day kindergartens on students with different background characteristics. (Author/JB)

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Effects of Kindergarten Experience on Academic Progress in French Immersion Programs

James Cummins

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SUMMARY

I. PURPOSE

The purpose of the study was to investigate the effects of different kindergarten options on subsequent academic achievement in French immersion programs. The specific focus was on the issue of whether there was any academic advantage to full-day (FD) bilingual kindergarten, involving a half-day of English and a half-day (HD) of French, compared to HD French or HD English kindergarten.

Scope

The scope of the study was limited to an examination of existing data, including further analysis of these data where appropriate. Data outside the context of French immersion programs (e.g., for regular English programs and programs for francophone students) were not within the scope of the study.

The data base consisted of the numerous evaluations of French immersion programs carried out during the past decade both in Ontario and across Canada as a whole. In Ontario, the major evaluation efforts have involved the four Ottawa/Carleton school systems. The Ottawa Roman Catholic Separate School Board (ORCSSB) and The Carleton Roman Catholic Separate School Board (CRCSSB) both operated FD bilingual kindergarten programs, whereas the two public systems, The Carleton Board of Education (CBE) and The Ottawa Board of Education (OBE), operate HD French kindergartens. Data involving a FD bilingual kindergarten were also available from the evaluation of The Stormont, Dundas and Glengarry (SDG) County Board of Education kindergartern programs.

Underlying Issues

Although no other evaluations were located which involved a FD bilingual kindergarten, data from other studies were relevant to the issues underlying the FD bilingual vs. HD French or English question. The two primary issues are:

(a) whether exposure to French at the kindergarten level is important for subsequent academic achievement in an immersion program; and

(b) whether exposure to English at the kindergarten level is important for subsequent academic achievement in an immersion program.

The assumption underlying FD bilingual kindergartens is that exposure to both languages is important. The assumption underlying HD French kindergarten is that exposure to English-medium instruction is unnecessary at the kindergarten level, while that underlying HD English kindergarten is that exposure to French is unnecessary at the kindergarten level.

A third issue is whether or not there is any differential effect for FD bilingual vs. HD French or English kindergarten for students from different socioeconomic or linguistic backgrounds. Because of self-selection factors in most immersion programs, the majority of students have tended to come from middle-class anglophone backgrounds and thus little research evidence exists relating to this issue. However, it is currently an important one in boards such as the ORCSSB, where a large majority of students enter the immersion program (50% English, 50% French, from kindergarten).

Limitations in Examining Issues

It is possible to examine the effects of FD bilingual vs. HD French kindergarten options only by comparing data obtained in different evaluations involving different boards of education. Comparisons across boards are inevitably confounded by possible student, teacher, curriculum, and board-policy differences. For example, the comparison of the CRCSSB and the ORCSSB with the CBE and the OBE involves a comparison of Catholic and non-Catholic students. Curriculum also varies across boards, as does the proportion of time spent with the medium of each language in different grades.

The fact that different teams of researchers carried out the evaluations in the CBE and the OBE, the CRCSSB, and the ORCSSB contributes to the difficulties, since different tests were often used

and those that were identical were not always administered at the same time.

These considerations preclude further statistical analysis of the "across-board" data. Instead, the procedure followed was to review the research data relevant to the underlying issues and to evaluate any general trends that emerged in the across-board comparisons in the light of the possible confounding factors as well as in the context of trends that appeared from within-board comparisons of various kindergarten options.

II. RESULTS

FD Bilingual vs. HD English Kindergarten

At the kindergarten level it was possible to compare the results of the CBE and the OBE HD French kindergarten with those of the SDG FD bilingual kindergartens. At the grade 1 level the CBE and the OBE data (Swain and Barik, 1976) were compared with the data from the ORCSSB (Edwards and Casserly, 1976) and the CRCSSB (McInnis and Donoghue, 1976) programs. Because English language arts was introduced in grade 2 in the CBE and the OBE programs, but only in later grades in the ORCSSB and the CRCSSB programs, comparisons of English achievement across boards at grades 2 and 3 were not meaningful.

No differences were apparent between FD and HD programs at the kindergarten level on the Metropolitan Readiness Test or on the OISE French Comprehension Test. Slight differences in favour of the CBE and the OBE (HD) programs were found at the grade 1 level, presumably on account of general board factors rather than kindergarten program differences.

It was concluded that there was no evidence in the data examined for any superiority in outcomes for FD bilingual as compared to HD French kindergarten. Although this finding is obviously tentative because of the possibility of confounding factors, it is consistent with the fact that in virtually every evaluation of French immersion in Canada, amount of exposure to English has shown little or no relationship to level of ultimate attainment in English.

FD Bilingual vs. HD English Kindergarten

It was possible to examine the effects of FD bilingual vs. HD English kindergarten in the initial cohort of the ORCSSB evaluation (Edwards and Casserly, 1971, 1976), owing to the fact that not all students who entered the grade 1 immersion program had been enrolled in FD bilingual kindergarten. The evaluation followed the progress of these students from grades 1 to 3. However, the numbers involved were relatively small (e.g., N=15 in grade 2 immersion who had experienced a HD English kindergarten), and in grade 3 the students in immersion and in the 75-minute program were combined for analysis of kindergarten group differences.

No clear trends emerged in the comparison of FD bilingual vs. HD English groups at the grade 1 level, possibly because as Edwards and Casserly suggest, the students who had experienced the HD program were concentrated in certain schools, and teachers may have made special efforts to make up any possible deficiencies of their kindergarten year. However, differences in French skills were apparent between FD bilingual and HD English groups in grades 2 and 3. These differences were mainly on variables derived from teachers' rating scales of performance in French and from the French story creation task.

These trends were interpreted as tentative evidence that exposure to French in kindergarten influences subsequent performance in French.

HD French vs. HD English Kindergarten

Further evidence that exposure to French at the kindergarten level is important for subsequent French achievement comes from the evaluations of immersion programs in the Wellington County, Elgin County, and Fredericton, New Brunswick, boards of education. In the Wellington County evaluation (Oliver et al., 1975, 1976), students who entered the immersion program in grade 1 after a HD English kindergarten performed considerably worse in French listening comprehension than grade 1 students in the following cohort who had had HD French kindergarten.

Comparison of the Elgin County grade 2 scores on the OISE French Comprehension Test (Barik, 1976) with those of the ORCSSB program (Game, 1979) allows the effects of FD bilingual vs. HD English

kindergarten to be assessed in the context of early partial immersion programs. The Elgin County score of 12.5 was considerably below the ORCSSB score of 25.9, suggesting that lack of exposure to French in kindergarten has influenced the performance of the Elgin County students.

The Fredericton early total immersion program was not preceded by any formal kindergarten since kindergartens are not a part of the New Brunswick public school system. Comparisons of students' performance in French at grades 1 and 2 and also at grade 6 (Gray, 1980; Gray and Cameron, 1980) suggested that students' performance was below that of students who had experienced a French kindergarten.

However, not all studies conform to this trend. An evaluation conducted by the Protestant School Board of Greater Montreal (1973) found no differences in French or English achievement between grade 3 students who had attended a HD French as compared to a HD English kindergarten. These findings suggest that with compensatory efforts on the part of teachers and highly motivated students, the lag in French skills as a result of lack of exposure at kindergarten level can be overcome. However, the report points out that "all groups selected for assessment originated from the middle-class level from homes actively in favour of French immersion and with parents who participated keenly with school objectives and practices regarding the education of their children through immersion" (p. 1) In other words, lack of French at kindergarten may not be overcome to the same extent by students with different background characteristics.

It was concluded on the basis of these findings that exposure to French at kindergarten appears to influence subsequent performance in French. However, under some conditions, it appears to be possible for students who did not experience French kindergarten to close the gap in French skills.

Kindergarten Options for Ethnic Minority Students

No studies have examined the question of whether FD vs. HD kindergarten programs have differential effects for students with different background characteristics. However, within the context of FD programs, a

study carried out by Egyed (1973) reported that Italian background students made less academic progress in a French-English FD bilingual kindergarten program than in either FD English or HD Italian-HD English programs. This study suggests that different kindergarten options can have differential outcomes from low socioeconomic ethnic minority children as compared to middle-class anglophone children.

Conclusions

Three main conclusions emerge from the present research:

1. Exposure to French at the kindergarten level, whether in FD bilingual or HD French programs, is important for students' subsequent progress in acquiring French language skills.

2. For the types of students typically represented in French immersion evaluations, exposure to English at the kindergarten level appears to be relatively unimportant for subsequent academic achievement; in other words, for these students, a FD bilingual kindergarten entails little or no academic advantages compared to a HD French kindergarten.

3. Virtually no research data exist in regard to possible differential effects of HD vs. FD kindergartens on students with different background characteristics.

It is recommended that if future research is undertaken on the effects of FD vs. HD kindergarten, it should focus on the effects of these program options on students from different socioeconomic and linguistic backgrounds.

CHAPTER 1

Introduction

Purpose and Scope

The purpose of the present study was to investigate the effects of different kindergarten options on subsequent academic achievement in French immersion programs. The specific terms of reference were as follows:

1. To conduct a review of research on the effects of full-day bilingual and half-day immersion kindergarten programs on subsequent linguistic achievement, at the end of Primary and Junior divisions.

2. To determine if there is any academic advantage to full-day bilingual kindergarten or half-day English language kindergarten programs.

3. To focus primarily on Ontario research in the Ottawa region, but include other relevant research as appropriate.

4. To validate conclusions from reported data and to conduct further analyses where unanalysed data exist relevant to the research.

A full-day bilingual kindergarten refers to programs where both French and English are used as mediums of instruction, usually involving the use of one language in the morning and the other in the afternoon. Half-day immersion kindergarten involves the use of French as the medium of instruction in programs which operate in either the morning or the afternoon. These programs have similar overall objectives to English half-day kindergarten programs in terms of the development of general academic readiness skills. In addition, of

course, they aim to promote the development of French language skills to facilitate students' adaptation to a French language curriculum at the grade 1 level.

The scope of the present research is limited to an examination of existing data, including further analysis of these data where appropriate. It is also limited to an examination of data in the context of French immersion programs. Thus kindergarten programs in francophone schools and those in non-immersion contexts are not within the scope of the present study.

Comparison of full-day (FD) vs. half-day (HD) kindergarten in the context of regular (that is, non-immersion) programs was carried out by Biemiller (1978), who found no clear evidence for differences in students' subsequent academic adjustment as a function of kindergarten experience. However, his study was cross-sectional in nature and possible differences in students' pre-kindergarten characteristics were not controlled. Biemiller (p. 95) points out that FD kindergarten programs may be important for students who are "at risk" educationally because of home background factors. The interactions between these factors and kindergarten experiences were not systematically examined in Biemiller's study.

In the present study also, the interactions between kindergarten program and home background factors can be examined only to the extent that data relevant to this issue were gathered in previous studies. Similarly, any conclusions drawn on the basis of the existing data cannot be generalized beyond those types of students who are represented in the evaluations. Thus, because the majority of students in French immersion programs have tended to come from middle-class anglophone backgrounds, conclusions regarding the effects of FD. vs. HD kindergarten generally apply only to students from similar backgrounds.

The Data Base

The data base for the present study consists of the numerous evaluations of French immersion programs carried out during the past decade both in Ontario and across Canada as a whole. In Ontario, the most extensive evaluation efforts have involved the four Ottawa/Carleton school systems. The Ottawa Roman Catholic Separate School Board (ORCSSB) and The Carleton Roman Catholic Separate School Board (CRCSSB) both operated FD bilingual kindergarten programs, whereas the two public systems, The Carleton Board of Education (CBE) and The Ottawa Board of Education (OBE), operate HD French kindergartens. Data were also available for The Stormont, Dundas and Glengarry (SDG) County Board of Education, which operated a FD bilingual program. However, this bilingual program was restricted to the kindergarten level and thus no comparisons involving this program can be made at other grade levels. Other boards in Ontario for which evaluation results were available operated HD French kindergarten programs and their results are generally consistent with those of the CBE and the OBE programs. Since the CBE/OBE data are the most comprehensive of those evaluations involving HD kindergarten, they will be compared with the CRCSSB, ORCSSB, and SDG FD bilingual kindergarten evaluation data.

These comparisons across boards are the only way to assess possible differential effects of FD bilingual vs. HD French kindergarten programs. However, comparisons of other kindergarten options the effects of FD bilingual kindergarten vs HD English kindergarten were examined for the first cohort of students in the ORCSSB evaluation. The Wellington County evaluation permits a comparison of the effects of HD English vs. HD French kindergarten in succeeding cohorts of students at the end of grade 1.

All of the comparisons, however, must be considered tentative. Comparisons of HD vs. FD kindergartens across boards are inevitably confounded by possible student, teacher, curriculum, and board-policy differences. For example, the comparison of CRCSSB and ORCSSB with CBE and OBE involves a comparison of Catholic and non-Catholic students. Curriculum also varies across boards as does the proportion of time

spent through the medium of French in the early grades. Added to these program differences across boards is the fact that the CBE/OBE, CRCSSB, and ORCSSB evaluations were carried out by different teams of researchers who employed different evaluation instruments and data analysis techniques.

Because of these various confounding factors, it was not considered appropriate to attempt further statistical analysis of the data. Such analysis would serve only to give the appearance of scientific precision where none exists. Instead, any general trends that appear in the across-board comparisons will be evaluated in the light of all the possible confounding factors as well as in the context of trends that emerge from within-board comparisons of kindergarten options.

Underlying all the comparisons of various FD and HD kindergarten options in the present report are two basic issues: (a) whether exposure to French at the kindergarten level is important for subsequent French language and other academic achievement in an immersion program; and (b) whether exposure to English at the kindergarten level is important for subsequent achievement in English language arts as well as in other subject areas in an immersion program. The assumption underlying FD bilingual kindergartens is that exposure to both languages is important; the assumption underlying HD French kindergarten is that exposure to English-medium instruction is unnecessary at the kindergarten level.

However, it should be pointed out that an equally relevant issue is whether there is any differential effect for FD bilingual vs. HD French kindergarten for students from different socioeconomic or linguistic backgrounds. Because of self-selection factors in most immersion programs, the majority of students have tended to come from middle-class anglophone backgrounds and thus little research evidence exists relevant to this issue. However, it is currently an important issue in boards such as the ORCSSB, where a large majority of students enter the immersion program (50% English, 50% French, from kindergarten). The point I wish to emphasize is that the present study can examine the first two issues, namely, the general effects of French and English time allotments at the kindergarten level, but the question of whether

FD vs. HD kindergarten options exert a differential effect on students with different background characteristics cannot be examined because no data relevant to this issue exist. Within the context of FD bilingual kindergarten programs there is one study (Egyed, 1973) which examines different linguistic program options for Italian background minority students and this study is considered in Chapter 5.

Overview of French Immersion Evaluation Results

Before considering the specific effects of different kindergarten options, it is appropriate to place these options in the context of the overall results of French immersion programs. These results have been well-documented and need be considered only briefly. The findings of the CBE and OBE evaluation (Barik & Swain, 1975; Swain & Barik, 1976) are similar to those of most early total immersion programs involving a HD French kindergarten, while the findings of programs involving a FD kindergarten can be illustrated with reference to the ORCSSB and CRCSSB evaluations (Edwards & Casserly, 1976; Edwards, McLaughlin, McCarrey & Fu, 1978; McInnis & Donoghue, 1976a, 1976b).

Barik and Swain (1975) outline the results of the CBE and OBE evaluation at the kindergarten level as follows:

> At the end of the Kindergarten year, the pupils in the total French immersion program: a) have learned more French than Kindergarten, Grade 1 and Grade 2 pupils receiving 20-40 minutes per day of instruction in French-as-a-second-language; b) are as ready to enter an English Grade 1 program as are pupils who have attended an English Kindergarten as far as numerical and English pre-reading skills are concerned; c) have not suffered any setback in general mental and cognitive development relative to their peers in a regular English program. (p. 27)

The immersion students do not perform as well as the comparison group in English language arts in grade 1 and continue to have some difficulty with technical aspects of English skills through grade 3. However, by the end of grade 4, the immersion students and their English-educated peers perform equivalently. This appears to be the

case even if English is not introduced into the curriculum until grade 3 or even grade 4.

The evaluations of early total immersion programs involving FD bilingual kindergarten are essentially the same. The immersion students tend to perform lower than comparison groups in English language arts in the early grades, but catch up by about grade 3 or 4 (Edwards & Casserly, 1976; McInnis & Donoghue, 1976a). In the early partial immersion program (50% French K-6) currently offered by the ORCSSB and the CRCSSB, differences between immersion and comparison groups in English language arts have tended to disappear earlier than in the early total immersion program.

Thus, in programs involving either FD or HD kindergarten, French immersion has been successful in meeting its objectives. Neither the lack of any exposure to English at the kindergarten level in HD programs nor the division of the day into French and English halves in FD programs appears to have any adverse effect on students' academic readiness for grade 1.

Report Outline

In Chapter 2 the effects of FD bilingual kindergarten and HD French kindergarten are compared, while Chapter 3 examines the effects of FD bilingual kindergarten compared to HD English kindergarten. The fourth chapter examines the effects of HD French vs. HD English kindergarten, while the fifth chapter considers kindergarten options for ethnic minority children. In the final chapter the findings and conclusions of the study are summarized.

CHAPTER 2

Comparison of Full-Day Bilingual Kindergarten and Half-Day French Kindergarten

It was not possible to compare the effects of FD bilingual kindergarten and HD French kindergarten within school systems, since no instances of these variations within the same system were found. However, general comparisons across boards were possible, although the caveats expressed in the previous chapter must be borne in mind in interpreting these comparisons. Comparisons of FD vs. HD kindergarten can be made only in the context of early total immersion since entirely different test batteries were used in the only two partial immersion program evaluations which could have yielded a FD bilingual vs. HD. French kindergarten contrast (Edwards, et al. 1978; Edmonton Public School Board, 1979).

The comparisons within the context of early total immersion involve the ORCSSB (pre-1975) and CRCSSB programs with FD bilingual kindergartens, and The Carleton Board of Education (CBE) and The Ottawa Board of Education (OBE) programs with HD French. No kindergarten data are available from the ORCSSB and CRCSSB evaluations (Edwards & Cassderly, 1976; McInnis & Donoghue, 1976), and thus comparisons between these boards and the CBE and OBE evaluation finds (Swain & Barik, 1976) are made only at the grades 1, 2, and 3 levels. However, The Stormont, Dundas and Glengarry (SDG) County Board of Education (Cornwall) operated two FD bilingual kindergarten options whose effects were compared by Swain and Barik (1978). These two kindergarten options were: (1) an alternate half-days approach, in which instruction was in one language for half the day (A.M. or P.M.) and in the other language for the other half of every school day; and (2) an alternate full-days approach, in which instruction was in one language for the duration of one day and in the other language for the duration of the following day, with the pattern repeated subsequently. The data

from both the SDG alternate half-days approach and alternate full-days approach are compared with the CBE and OBE HD French kindergarten, since both SDG approaches are equivalent to FD bilingual in terms of time allotment to French and English.

A possibility which must be borne in mind in interpreting the comparison of HD and FD kindergarten is that some children enrolled in a HD kindergarten program may also have attended a HD program in a private kindergarten (for example, Montessori). No data were collected in the evaluation of the CBE and OBE immersion program in regard to this possibility, and thus it is not known how many (if any) of the students involved in the CBE and OBE evaluation attended a private HD kindergarten in addition to the French immersion HD kindergarten program. Clearly, this would effectively constitute a FD program and would invalidate the comparison of HD and FD programs if a substantial number of CBE and OBE students in the evaluation cohorts did attend an additional HD program. Thus, any general trends which might appear in the comparison of HD and FD kindergarten must be interpreted extremely cautiously because of the possibility of confounding factors.

The groups of children for which data are available in the four evaluations are shown in Table 1. The comparisons will be carried out by grade level for English, French and Math achievement. Within each board the cells involved in comparisons will be designated as follows: CBE/OBE AK = CBE/OBE Evaluation Year 1971/72, kindergarten group; CRCSSB B2 = CRCSSB Evaluation Year 1974/75, grade 2 group, and so on.

Kindergarten Comparison (SDG vs. CBE/OBE)

The kindergarten options in the SDG program have been outlined earlier. The Otis-Lennon Mental Ability Test (Primary 1 Level, Form J) and the Metropolitan Readiness Tests (Form A) (MRT) were administered in both the SDG and CBE and OBE evaluations. Both evaluations were carried out by the Bilingual Education Project at OISE. Different versions of the French Comprehension Test (FCT) were given, but Swain and Barik (1978) provide data comparing the performance of SDG students with those in a HD French kindergarten.

TABLE 1

Evaluation of CBE/OBE, CRCSSB, ORCSSB, and SDG Early Immersion Programs:
Data Available for Comparing the Effects of FD Bilingual versus HD French Kindergarten

Grade	CBE/OBE Evaluation Year				CRCSSB Evaluation Year			ORCSSB Evaluation Year			SDG
	A	B	C	D	A	B	C	A	B	C	
K	71/72	72/73									75/76
1	71/72	72/73	73/74		73/74	74/75		70/71	71/72		
2		72/73	73/74	74/75	73/74	74/75			71/72	72/73	
3			73/74	74/75		74/75	75/76*			72/73*	

* The CRCSSB and ORCSSB C3 groups received a different battery of tests from both the CRCSSB B3 group and the CBE/OBE C3 and D3 groups, and thus the performance of these groups cannot be compared.

TABLE 2

IQ, MRT, and FCT Comparisons at Kindergarten

Variables	CBE/OBE		SDG	
	A	B	A[1]	B
IQ		115	111	115
MRT (raw scores)		66	66	62
FCT (raw scores)			26	28

1. A = alternate half-days approach
   B = alternate full-days approach

The data presented in Table 2 suggest that there is little difference between the school readiness of students who have followed a FD bilingual (SDG) program and that of students who have followed a HD French (CBE/OBE) program. Both groups are of similar IQ and perform comparably on the MRT. According to Swain and Barik (1978, p. 8), the FCT scores of the SDG students are similar to those of students in a HD French kindergarten.

Grade 1 Comparison

Grade 1 Programs. The CBE and OBE grade 1 classes were taught entirely in French, but in both the CRCSSB and ORCSSB, religious education was taught in English by English-speaking teachers for twenty minutes per day. All other subjects were taught in French.

Intelligence and Achievement Measures.

In the CBE and OBE evaluation (Swain and Barik, 1976), the following measures were administered: Otis-Lennon Mental Ability Test, Elementary I Level, Form J; the Metropolitan Achievement Test, Primary I Battery, Form A (1963 edition), involving Word Knowledge, Word Discrimination, Reading, and Arithmetic Concepts and Skills subtests; Test de Rendement en Francais (Grade 1); and French Comprehension Test (experimental form).

The following measures were administered in the CRCSSB evaluation (McInnis & Donoghue, 1976): Lorge-Thorndike Intelligence Test, Level 1, Form A (group A1); Otis-Lennon Mental Ability Test, Elementary I Level, Form J (group B1); Metropolitan Achievement Test, Primary I Battery, Form F (1971 edition), involving Word Knwoledge, Word Analysis, Reading, and Mathematics subtests; Tests de Rendement, Premiere 1969-70 edition; and French Comprehension Test (experimental form, group A1, final form, group B1).

The following measures were administered in the ORCSSB evaluation (Edwards & Casserly, 1976): Lorge-Thorndike Intelligence Test, Level 1; Tests de Rendement; and Metropolitan Achievement Test (MAT), Primary I Battery (same subtests as the CBE and OBE evaluation).

The scores for the CBE and OBE, CRCSSB, and ORCSSB grade 1 students on the MAT and IQ measures are presented in Table 3. The MAT scores are given in both standard scores and percentiles. The groups could not be meaningfu compared on the Tests de Rendement, since different editions of the test were used in the three evaluations and the test was administered in June in the CBE and OBE evaluation, whereas in the other two evaluations it was administered between March and May. The Montreal norming group received the test in March. However, it was possible to compare CBE and OBE group C1 with CRCSSB group A1 on the French Comprehension Test (FCT) (1973/74 version).

Grade 1 Results.

Since different editions of the MAT were given to the CRCSSB students as compared to the ORCSSB and CBE and OBE students, the standard scores cannot be directly compared across these groups. However, comparison of the percentile scores of the CBE and OBE and CRCSSB does not suggest any clear pattern of advantage for either group. The IQ of the CBE and OBE groups is similar to that of the ORCSSB group B1. Comparison of these groups of the MAT suggests that the ORCSSB group performs at a slightly lower level on all subtests. This is likely because of student or board-wide characteristics which are not controlled by equating groups on IQ. Comparisons of the CBE and OBE with the CRSSB on the FCT shows no difference.

In summary, there is no evidence in the grade 1 comparisons that students who have attended a FD bilingual kindergarten prior to French immersion experience any academic advantage as a result. The caveats expressed earlier, however, should be borne in mind in interpreting these comparisons.

Grade 2 and 3 Comparisons

Grades 2 and 3 Programs. The CBE and OBE program introduced sixty minutes of English language arts per day at the grade 2 level, but English language arts was not introduced until grade 3 in the ORCSSB program and not until grade 4 (for group B3) in the CRCSSB program. Religious education continued to be taught in English in grades 2 and 3 of these boards. These program differences obviously limit the inferences that can be drawn about the effects of kindergarten experience on English language skills at the grade 2 and 3 levels.

Intelligence and Achievement Measures.

The CBE and OBE evaluation used the Otis-Lennon Mental Ability Test, the MAT Primary II, Form A (group B2), Form F (groups C2 and D2), MAT Elementary, Form F (groups C3, D3), and the FCT (experimental version group C2, final version groups D2 and D3).

The CRCSSB evaluation used the Lorge-Thorndike Intelligence Test Level 2, Form A) for group A2 and the Otis-Lennon Mental Ability Test for group B2. The MAT primary II, Form F, was used for groups A2 and B2 and the MAT Elementary, Form F, for group B3. The FCT experimental version was used for group A2, and the final version for groups B2 and B3.

The ORCSSB used the MAT Primary II, Form A, for groups B2 and C2. No IQ measures were administered to the grade 2 classes, and a different battery of tests was given to the C3 group.

The MAT was administered in May and June in the CBE and OBE evaluation, in April and May in the CRCSSB evaluation, and between March and June for group B2 and in January and February for group C2 in the ORCSSB evaluation. These differences should obviously be taken into account in interpreting standard score differences among the groups.

TABLE 3

IQ, MAT, and FCT Comparisons at Grade 1

Variables	CBE/OBE			CRCSSB		ORCSSB[1]	
	A1	B1	C1	A1	B1	A1	B1
IQ[2]	109	109	114	110	109	103	112
MAT[3]							
Word Knowledge	46 (40)	46 (40)	51 (60)	38 (42)	37 (38)	40 (35)	44 (30)
Word Discrimination/ Analysis[4]	48 (45)	47 (43)	52 (63)	35 (34)	35 (34)	42 (40)	44 (30)
Reading	45 (38)	44 (35)	47 (45)	38 (44)	37 (38)	27 (04)	38 (18)
Arithmetic/ Mathematics	51 (65)	51 (65)	52 (70)	40 (46)	38 (40)	47 (70)	49 (60)
FCT (raw scores)			46	45			

1. ORCSSB scores are those obtained by the English background FD kindergarten subgroup.
2. The CBE/OBE and CRCSSB B1 groups have IQ scores from the Otis-Lennon test, while the CRCSSB A1 and ORCSSB groups were administered the Lorge-Thorndike test.
3. In converting standard scores to percentiles, the middle-of-year norms were used for the ORCSSB group A1 and end-of-year norms for group B1. Administration dates are not given in the 1970-71 report, but middle-of-year norms are used in the report. Group B1 was administered the MAT between March and June 10, so end-of-year norms were used.
4. The second MAT subtest is labelled "Word Discrimination" in forms A and B (1963 edition), and "Word Analysis" in Form F (1971 edition, given to the CRCSSB).

Grade 2 and 3 Results.

Comparison of the CBE and OBE groups C2 and D2 with the CRCSSB groups A2 and B2 shows the CBE and OBE groups performing somewhat better on the MAT and equivalently on the FCT. The OBE students have had one period a day of English language arts instruction.

The superiority of the CBE and OBE students compared to the CRCSSB students on the MAT is again evident at the grade 3 level (Table 5) and is also attributable to the lack of English language arts instruction at the grade 3 level in the CRCSSB. Both groups again perform equivalently on the FCT.

Conclusion

The comparison of FD bilingual and HD French kindergarten in terms of effects on English language arts could meaningfully be carried out only at the kindergarten grade 1 levels because the grades 2 and 3 comparisons were confounded by differences between the CBE and the OBE and the Ottawa and Carleton Boards in exposure to English language arts. The kindergarten and grade 1 comparisons of the effects of FD vs. HD kindergarten failed to show any advantage of FD over HD in terms of English or French academic skills. Differences in French skills were also not found at the grades 2 and 3 levels. However, because of the limitations inherent in post hoc analyses, the possibility that differences have been obscured by confounding factors cannot be ruled out.

TABLE 4

IQ, MAT, and FCT Comparisons at Grade 2

Variables	CBE/OBE			CRCSSB		ORCSSB	
	B	C	D	A	B	B	C
IQ	114	114	116	116	112	-	-
MAT[1]							
Word Knowledge	52 (73)	59 (72)	61 (76)	54 (50)	52 (38)	43 (35)	42 (45)
Word Analysis/ Discrimination	55 (83)	57 (68)	60 (78)	51 (46)	49 (38)	46 (50)	46 (60)
Reading	50 (65)	57 (68	61 (80)	53 (50)	51 (40)	40 (23)	40 (28)
Spelling	51 (65)	56 (48)	59 (60)	49 (24)	47 (18)	38 (18)	37 (15)
Mathematics/ Arithmetic	52 (70)	60 (62)	61 (66)	55 (38)	56 (44)	49 (65)	45 (65)
FCT (raw scores)		53[2]	38[3]	52[2]	37[3]		

1. CBE/OBE group B2 and ORCSSB groups B2 and C2 took MAT Primary II, Form A, whereas the other groups took MAT Primary II, Form F. Standard scores for these two forms are not directly comparable. Percentile scores for ORCSSB group B2 are based on end-of-year norms and those for group C2 on mid-year norms. For the other groups percentile scores are based on end-of-year norms.

2. experimental version, max = 65.

3. final version, max = 45.

TABLE 5

IQ, MAT, and FCT Comparisons at Grade 3

Variables	CBE/OBE		CRCSSB
	C	D	B
IQ	116	112	113
MAT			
Word Knowledge	71 (76)	70 (74)	63 (48)
Reading	70 (74)	70 (74)	66 (64)
Language	76 (68)	74 (62)	71 (52)
Spelling	68 (64)	67 (70)	58 (32)
Mathematics	78 (72)	75 (66)	71 (52)
FCT (raw score)		40	40

CHAPTER 3

Comparison of Full-Day Bilingual Kindergarten and Half-Day English Kindergarten

The evaluation of the first cohort of students in the ORCSSB immersion program (Edwards & Casserly, 1971, 1976) involved a comparison between the performance of students who had attended a FD bilingual kindergarten and that of students who had attended a HD English kindergarten. This cohort was in grade 1 in 1970/71, in grade 2 in 1971/72 and in grade 3 in 1972/73. No psychometric comparison was carried out at the kindergarten level, but in 1969 a questionnaire was sent out by the ORCSSB to school principals to assess the effects of FD kindergarten on children's adaptation to school. The board was specifically interested in monitoring whether or not fatigue might be a factor in a FD kindergarten program.

The results of this questionnaire survey could not be located by the board, but Mrs. Adrienne Game of the ORCSSB reported that, according to principals, fatigue was not a problem in FD kindergarten and students in the FD program appeared to become socialized to school considerably earlier than students in a HD kindergarten (personal communication 16/1/1981).

The psychometric evaluation carried out by Edwards and Casserly monitored the progress from grades 1 to 3 of students in both immersion and seventy-five minutes-per-day French programs who had previously attended either FD bilingual or HD English kindergartens. It is important to note that two factors are involved in this comparison, namely, the extra half day of instruction for the FD group, and the fact that this extra half day is in French, whereas the HD group had no exposure to French prior to grade 1.

Since an extremely large battery of tests was administered to immersion and comparison (seventy-five minutes of French per day) groups at each grade level, these tests will not be described in detail. Instead, the measures will be described in a general way and discussed in more detail when significant findings are being examined.

Measures

The standardized tests administered to the first cohort are as follows: Lorge-Thorndike Intelligence Tests, the Metropolitan Achievement Tests, the Tests de Rendement, the Illinois Test of Psycholinguistic Abilities, Canadian Tests of Basic Skills (grade 3), Slingerland Screening Test, and the Culture Fair Intelligence Test (grade 3). In addition, several rating scales were filled out for each student by his or her teacher. These were the Slingerland Screening Test for Identifying Children with Specific Learning Disability, the Vineland Social Maturity Scales, and the Pupil Behaviour Rating Scale. These rating scales were completed for each student by both English and French teachers. In addition, French and English word association and story creation measures were administered.

Analyses

Although analyses of variance were performed at each grade level, somewhat different combinations of groups were involved in these analyses at different grade levels. However, despite these variations, a general picture of the effects of kindergarten programs emerges across the three grade levels. The grade 1 analyses on which significant differences involving kindergarten background appear are summarized in Table 1. Although no differences involving kindergarten background were apparent on IQ, the IQ scores of the different groups are also shown to assist in interpretation of the group differences on the other variables.

Grade 1 Results

No significant differences involving the kindergarten groups were found on any of the standardized measures (Metropolitan Achievement Tests, Tests de Rendement, Illinois Test of Psycholinguistic Abilities). Differences were found on the Behaviour scale of the English Pupil Behaviour Rating Scale (EPBRS) and on the Orientation scale of the French Pupil Behaviour Rating Scale (FPBRS), as well as on several of the English and French Story Creation measures.

The Behaviour scale covers eight aspects of personal and interpersonal adjustment. These are (1) cooperation; (2) attention; (3) ability to organize; (4) ability to cope with change in stressful situations; (5) acceptance by others; (6) ability to assume responsibility; (7) ability to complete assignment; (8) degree of tactfulness.

The Orientation scale covers four aspects of students' adjustment labelled: (1) time concept; (2) orientation in space; (3) relationship; (4) direction.

Students who had attended the FD kindergarten were rated higher on the EPBRS Behaviour Scale than those who had attended the HD kindergarten. The significant differences between kindergarten groups on the Orientation scale of the FPBRS are mainly due to the differences within the seventy-five-minute program where children from French-speaking backgrounds who had attended the FD kindergarten were rated higher than those who had attended the HD kindergarten.

Children from HDS kindergarten background used a greater total number of verbs and a greater total number of different verbs in their French and English Story Creations than children from a FD kindergarten background. However, they also made a higher number of grammatical errors in their English stories than children from a FD kindergarten background.

Edwards and Casserly (1971, pp. 211-212) summarize these results as follows:

> In summary, when the two kindergarten backgrounds are compared irrespective of subsequent Grade One programs differences are found, and among these differences some favour the half day Kindergarten while others favour the full day Kindergarten. This is not attributed by the writers to a lack of differential effect on

> the part of the two Kindergarten programs, but rather to compensatory influences on the part of the Grade One programs. These compensatory influences may have contributed largely to obliterate earlier differences. In particular, it is noted that children from half day Kindergarten backgrounds tended to be concentrated in certain classes. It is possible that the Grade One teachers aware of this fact may have balanced out this possible deficit early in the year through insightful teaching.

In other words, few conclusions can be drawn from the principal analyses comparing the HD English and FD bilingual kindergarten background groups, possibly because, as Edwards and Casserly suggest, grade 1 teachers may have devoted more attention to students who experienced only a HD English kindergarten

However, among Italian background children in the seventy-five-minute program, differences were found as a function of kindergarten background. Since these findings apply only to the seventy-five-minute program, they will be summarized briefly. The Italian FD kindergarten group obtained significantly higher scores on the Lorge-Thorndike IQ Test and on the French Pupil Behaviour Rating Scale (Auditory Comprehension and Listening, Spoken Language, Orientation, and Total Score), but significantly lower scores on the French version of the Vineland Social Maturity Scale than Italian-background students who attended a HD kindergarten.

Edwards and Casserly (1971) interpret the IQ differences as "due to parents of brighter children placing them in a full day Kindergarten program, rather than to the enhancing effect on the part of the Kindergarten program" (p. 213). However, the differences on other measures in favour of the FD group are interpreted as due to the program. For example, they conclude that Italian background children "appear to have profited especially from the full day Kindergarten as opposed to the half day Kindergarten prior to Grade One" (pp. 214-215). This conclusion hardly seems warranted in view of their prior conclusion regarding the IQ differences and the significant differences in favour of the HD group on the French version of the Vineland Social Maturity Scale.

Grade 2 Results

Differences between FD bilingual and HD English Kindergarten groups at the grade 2 level are somewhat more systematic and easier to interpret than those at the grade 1 level. A clear tendency for FD kindergarten students to perform better than HD kindergarten students on measures of French skills is indicated at the grade 2 level. This tendency appears more prominent in the immersion than in the seventy-five-minute program. However, because of the small number of students in the HD immersion group (N=15), these trends should be interpreted cautiously.

The comparisons are presented in Tables 22 to 29 and Table 31 of the Edwards and Casserly report (1976 pp. 137-46), and these tables are reproduced here. On the MAT Spelling subtest and on the English Vineland Social Maturity Scale the HD kindergarten group obtains higher scores. No interpretation of these findings is presented by the authors.

On the Tests de Rendement (Table 7), interactions of program and kindergarten background were found with respect to Test de Calcul and Total score (combined Calcul and Francais). On these subtests, higher scores were obtained in the immersion group by students from a FD bilingual kindergarten and in the seventy-five-minute group by students from a HD English kindergarten.

French teachers rated students in the FD kindergarten group as significantly superior on spoken language, verbal score, orientation, motor co-ordination, non-verbal scores, and total scores (Table 9). On the French word association task (Table 11) differences also emerged in favour of the FD kindergarten group. Compared to the HD group, they gave more paradigmatic responses (that is, responses of the same grammatical form class as the stimulus word; for example, dog - cat) and more semantic clusters (responses semantically related to the stimulus word which are neither of the same form class nor capable of occurring in immediate sequence to the stimulus word [syntagmatic], for example, eat - plate). On ten out of seventeen ratings of students' French stories (Tables 13 and 15) significant differences appeared in favour of the FD kindergarten group.

TABLE 6

Average Scores and Statistically Significant Differences of Grade 1 Children on Selected Variables According to Program, Kindergarten Background, and Language Background (From Edwards and Casserly, 1971)

Program	Kindergarten Background	Language Background	IQ	EPBRS (Behav.)	FPBRS (Orient.)	English Story Creation (Grammar errors)	English Story Creation (No. verbs)	English Story Creation (No. different verbs)	French Story Creation (No. verbs)	French Story Creation (No. different verbs)
Immersion	FD	E	103 (72)	26 (72)	13 (72)	3 (67)	22 (70)	9 (70)	19 (67)	7 (67)
		F	108 (46)	25 (46)	13 (46)	3 (42)	24 (43)	10(43)	17 (42)	7 (42)
	HD	E	107 (16)	23 (15)	14 (16)	5 (12)	24 (12)	11(12)	15 (13)	6 (13)
		F	102 (05)	22 (05)	14 (05)	6 (05)	42 (05)	15(05)	30 (05)	11(05)
75 minute	FD	E	102 (340)	25 (342)	12 (343)	3 (61)	21 (62)	9(62)	8 (59)	3 (59)
		F	100 (145)	24 (142)	12 (146)	3 (35)	21 (35)	8(35)	13 (32)	5 (32)
	HD	E	99 (338)	25 (333)	12 (332)	4 (20)	18 (20)	10(20)	4 (19)	2 (19)
		F	97 (110)	23 (110)	11 (105)	4 (06)	28 (07)	12(07)	36 (07)	11(07)
Statistically Significant Differences Between	Programs (P)		.001	-	-	-	.05	-	.05	.001
	Kindergarten Backgrounds (K)		-	.01	.001	.01	.05	.05	.01	.05
	Language Backgrounds (L)		-	-	.001	-	.01	-	.001	.001
	P x K		-	-	-	-	-	-	-	-
	P x L		-	-	.01	-	-	-	.01	-
	L x K		-	-	.001	-	.01	-	.001	.001
	P x L x K		-	-	.05	-	-	-	-	-

TABLE 7

(Table 22, Edwards & Casserly, 1976)

Average Scores and Statistically Significant Differences of Grade Two Children According to Program, Kindergarten Background, and Sex on the Tests de Rendement and Metropolitan Achievement Tests

Program	Kindergarten Background	Sex	N	Tests de Rendement			N	Metropolitan Achievement Tests						
				Calcul	Français	Total		Word Knowledge	Word Discrim.	Reading	Spelling	Arith. Concepts	Arith. Problems	Arith. Total
Immersion	Full Day	M	63	20.05	10.92	30.65	62	43.58	46.81	40.06	38.02	47.54	56.11	50.73
		F	39	18.77	12.51	30.51	39	42.56	44.92	41.15	37.21	45.32	51.76	47.44
	½ Day	M	6	19.17	9.83	29.00	6	44.00	52.00	38.67	40.80	50.67	58.00	53.50
		F	7	16.86	7.57	24.43	7	46.86	48.29	43.43	47.67	45.29	51.57	47.29
75 minute	Full Day	M	59	9.84	5.30	15.15	244	46.21	48.80	43.39	48.82	43.55	45.56	44.04
		F	30	10.13	4.90	15.03	227	47.06	50.38	45.33	51.01	44.46	45.65	43.73
	½ Day	M	20	14.40	5.24	19.47	310	45.65	48.73	42.42	48.79	43.98	48.06	45.22
		F	27	12.11	5.31	17.22	263	47.95	51.80	45.81	52.95	43.04	47.17	44.20
Statistically Significant Differences Between	Programs			.001	.001	.001		...	...	.05	.001	...	.001	.001
	Kindergarten Backgrounds			...	...	...		...	...	...	.01	...	...	...
	Sexes			...	...	...		...	...	...	.05	...	...	...
	Program X Kindergarten			.01	...	.01		...	...	...	...	...	...	...
	Program X Sexes			...	...	...		...	.05	...	...	...	...	...

TABLE 8

(Table 23, Edwards & Casserly, 1976)

Average Scores and Statistically Significant Differences of Grade Two Children according to Program, Kindergarten Background, and Sex on the Vineland Social Maturity Scales English and French and the I.T.P.A.

Program	Kindergarten Background	Sex	N	Vineland Social Maturity - English	Vineland Social Maturity - French	N	Illinois Test of Psycholinguistic Ability			
							Auditory Reception	Auditory Association	Auditory Memory	Grammatic Closure
Immersion	Full Day	M	70	67.76	68.14	64	35.23	38.50	39.89	36.02
		F	42	69.89	65.41	30	40.13	42.31	45.74	46.15
	½ Day	M	7	75.29	65.00	7	36.71	35.86	37.00	36.14
		F	8	70.75	68.38	8	31.25	31.88	42.50	34.13
75 minute	Full Day	M	233	61.42	61.75	60	33.93	34.58	36.17	34.17
		F	206	61.91	61.45	35	31.89	33.11	38.31	34.37
	½ Day	M	318	64.69	60.79	30	30.67	34.00	40.47	31.57
		F	279	65.03	59.42	30	34.27	35.73	40.80	37.17
Statistically Significant Differences Between	Programs			.001	.001		...	...	...	...
	Kindergarten Background[a]			.01	...		...	...	...	...
	Sexes			...	...		...	...	...	...
	Program and Kindergartens			...	...		...	...	...	...
	All Factors			...	...		.05	...	...	...

TABLE 9

(Table 24, Edwards & Casserly, 1976)

Average Ratings and Statistically Significant Differences of Grade Two Children on the Pupil Rating Scales - English and French according to Program, Kindergarten Background, and Sex

Program	Kindergarten Background	Sex	N	Pupil Rating Scale - English								Pupil Rating Scale - French							
				Aud. Comp.	Spoken Lang.	VERBAL SCORE	Orient	Motor Co-ord	Pers-Soc. Beh.	NON-VERBAL SCORE	TOTAL SCORE	Aud. Comp.	Spoken Lang.	VERBAL SCORE	Orient	Motor Co-ord	Pers-Soc. Beh.	NON-VERBAL SCORE	TOTAL SCORE
Immersion	Full Day	M	55	12.55	15.21	27.86	12.79	9.36	24.98	47.22	75.12	12.51	15.09	27.42	13.69	9.60	26.00	49.19	76.71
		F	34	11.44	14.17	26.15	12.15	9.00	24.18	45.26	71.41	12.12	15.32	27.44	12.73	10.63	25.85	49.21	76.52
	½ Day	M	7	12.29	15.00	27.29	12.00	9.00	24.86	45.88	73.14	10.42	12.71	23.14	12.14	5.00	24.86	44.71	67.86
		F	7	12.00	15.38	27.38	11.63	8.63	23.57	44.14	71.57	10.12	11.25	21.38	11.75	9.25	24.63	45.63	67.00
75 minute	Full Day	M	228	11.74	14.47	26.20	11.84	8.88	23.32	44.04	70.19	12.11	14.13	26.25	12.30	9.21	23.10	45.71	71.71
		F	212	11.97	15.02	27.00	12.54	9.36	25.71	47.69	74.83	12.82	15.16	27.99	12.61	9.39	26.15	48.15	75.90
	½ Day	M	306	12.01	14.59	26.91	13.51	9.10	26.94	46.57	72.20	15.71	13.40	24.89	12.21	9.14	24.21	45.58	70.44
		F	265	12.28	15.17	27.45	12.84	9.34	26.11	48.24	75.58	11.94	13.96	25.89	12.35	9.20	25.88	47.44	73.34
statistically significant differences between	Programs			...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Kindergarten Backgrounds			...	...	...	...	...	...	...	...	...	.001	.001	.05	.001	...	.05	.01
	Sexes			...	...	...	...	...	...	...	...	...	...	...	...	.01	...	...	...
	Program X Kindergarten			...	...	...	...	...	...	...	...	...	.05	...	...	.01	...	...	...
	Program X Sex			...	...	...	...	...	...	...	...	...	...	...	...		...	...	...

TABLE 10

(Table 25, Edwards & Casserly, 1976)

Average Scores and Statistically Significant Differences for Scores of Grade Two by Program, Kindergarten Background on the Word Association Test English

Program	Kindergarten Background	N	Word Association - English						
			Syntagmatic	Paradigmatic	Semantic Clusters	Rhyming Responses	Trans-formations	Idio-syncratic	Non-Responses
Immersion	Full Day	84	10.69	8.24	12.76	.17	.63	1.52	.33
	½ Day	14	9.21	5.57	13.64	.07	.50	1.86	.14
75 minute	Full Day	31	9.16	7.61	10.35	1.09	1.29	2.00	.42
	½ Day	15	8.87	8.13	8.60	1.13	3.07	1.53	.27
Statistically Significant Differences Between	Programs		...	...	...	...	.001	...	...
	Kindergarten Backgrounds		...	...	...	...	...	...	...
	Programs X Kindergarten		...	...	...	...	...	...	...

TABLE 11

(Table 26, Edwards & Casserly, 1976)

Average Scores and Statistically Significant Differences for Scores of Grade Two by Program, Kindergarten Background, and Sex on the Word Association Test

Program	Kindergarten Background	Sex	N	Word Association - French: Syntagmatic	Paradigmatic	Semantic Clusters	Rhyming Responses	Trans-formations	Idio-syncratic	Non-Responses
Immersion	Full Day	M	61	3.25	4.48	4.62	.57	1.54	6.36	10.18
		F	36	3.48	4.85	4.33	.72	2.38	6.21	9.08
	½ Day	M	6	3.33	4.67	4.00	.33	.33	2.67	15.67
		F	6	2.43	3.29	3.00	.29	1.86	10.71	9.43
75 minute	Full Day	M	64	1.05	2.24	2.00	.19	.53	4.19	20.75
		F	41	1.29	2.69	1.17	.33	.62	3.71	20.26
	½ Day	M	23	.70	2.04	1.13	.18	.73	1.36	24.96
		F	20	.55	1.32	1.56	.35	.94	1.53	25.40
Statistically Significant Differences Between	Programs			.001	.001	.001	...	.01	.001	.001
	Kindergarten Backgrounds			...	.05	.05	...	...	...	.001
	Sexes			...	.05	...	...	.05	.05	...
	Programs X Kindergarten			...	...	...	...	...	...	...
	Programs X Sexes			...	...	...	...	.05	.05	...
	Kindergarten X Sexes			...	...	...	...	...	.05	...

TABLE 12

(Table 27, Edwards & Casserly, 1976)

Average Ratings and Statistically Significant Differences for Scores of Grade Two Students by Program, Kindergarten Background on Ratings on English Stories

Program	Kindergarten Background	N	Ratings on Story - English								
			Ease of Talking	Word Choice	Thought Patterns	Errors of Substance	Grammatical Correctness	Enunci-ation	Rhythm	Intonation	Total
Immersion	Full Day	83	3.04	2.55	2.45	2.58	2.34	2.70	2.30	2.34	20.25
	½ Day	14	3.07	2.50	2.36	2.57	2.64	2.71	2.29	2.43	20.57
75 minute	Full Day	30	3.33	2.73	2.53	2.60	2.63	2.70	2.45	2.53	21.53
	½ Day	15	2.73	2.00	2.13	2.20	2.37	2.33	1.93	2.00	17.50
Statistically Significant Differences Between	Programs		...	...	...	...	...	...	...	...	...
	Kindergarten Backgrounds		...	...	...	...	...	...	...	...	...
	Programs X Kindergarten		...	...	...	...	...	...	...	...	...

TABLE 13

(Table 28, Edwards & Casserly, 1976)

Average Ratings and Statistically Significant Differences for Scores of Grade Two Children by Program, Kindergarten Background, and Sex on the Ratings on the French Stories

Program	Kindergarten Background	Sex	N	Ratings on Story - French: Ease of Talking	Word Choice	Thought Patterns	Errors of Substance	Grammatical Correctness	Enunciation	Rhythm	Intonation	Total
Immersion	Full Day	M	61	2.16	1.97	1.89	1.97	1.75	1.89	1.72	1.75	15.10
		F	36	2.08	1.83	1.94	1.92	2.00	2.03	1.89	1.81	15.50
	½ Day	M	6	1.50	1.50	1.67	1.67	1.83	1.50	1.50	1.50	12.67
		F	6	2.17	2.00	1.67	2.00	1.80	2.00	1.50	1.83	14.67
75 minute	Full Day	M	64	1.42	1.42	1.39	1.39	1.34	1.41	1.36	1.34	11.09
		F	41	1.80	1.76	1.73	1.71	1.49	1.73	1.61	1.66	13.49
	½ Day	M	23	1.26	1.30	1.22	1.30	1.22	1.26	1.09	1.17	9.83
		F	20	1.50	1.60	1.30	1.40	1.20	1.55	1.25	1.25	11.05
Statistically Significant Differences Between	Programs			.001	.01	.001	.001	.001	.01	.01	.001	.001
	Kindergarten Backgrounds			...	...	.05	...	...	...	.01	...	.05
	Sex			.05	.05	...	...	...	.01	...	...	...
	Interactions			...	...	...	...	...	...	...	...	...

TABLE 14

(Table 29, Edwards & Casserly, 1976)

Average Number of Words Used and Statistically Significant Differences for Scores of Grade Two Students by Program, Kindergarten Background, and Sex on the Word Counts of English Stories

Program	Kindergarten Background	Sex	N	Word Counts - English: Total Nouns	Total Different Nouns	Total Verbs	Total Different Verbs	Total Adjectives	Total Different Adjectives	Total Words	Total Grammatical Errors
Immersion	Full Day	M	49	49.92	34.47	27.20	14.31	9.59	6.39	104.75	2.86
		F	33	51.55	33.33	25.45	13.55	11.36	6.12	88.52	2.55
	½ Day	M	6	58.00	37.17	35.17	13.67	12.33	7.33	105.50	3.50
		F	8	53.63	37.25	32.38	14.13	7.00	4.38	94.00	2.75
75 minute	Full Day	M	49	59.63	37.41	35.51	15.27	17.88	10.45	113.22	4.00
		F	25	45.48	30.83	30.54	13.71	15.92	7.96	93.83	3.79
	½ Day	M	13	50.23	31.69	26.69	12.85	16.15	8.08	93.08	2.58
		F	13	47.77	33.54	31.38	17.23	13.54	8.23	92.64	3.23
Statistically Significant Differences Between	Programs			***	***	***	***	***	.05	***	***
	Kindergarten Backgrounds			***	***	***	***	***	***	***	***
	Sexes			***	***	***	***	***	***	****	***
	Programs X Kindergartens			***	***	***	***	***	***	***	***
	Programs X Sexes			***	***	***	***	***	***	***	***

TABLE 15

(Table 31, Edwards & Casserly, 1976)

Average Number of Words Used and Statistically Significant Differences for Scores of Grade Two Students by Kindergarten Background on the Word Counts of French Stories

Kindergarten Background	N	Word Counts - French							
		Total Nouns	Total Different Nouns	Total Verbs	Total Different Verbs	Total Adjectives	Total Different Adjectives	Total Words	Total Grammatical Errors
Full Day	182	25.66	17.64	14.86	7.96	5.08	3.42	44.54	5.85
½ Day	53	17.87	12.09	10.91	5.38	3.34	2.26	31.87	5.26
Statistically Significant Differences Between Kindergraten Backgrounds		.001	.001	.001	.001	.01	.001	.001	...

Edwards and Casserly (1976, pp. 132-33) summarize the grade 2 results as follows:

> The story creation test, in agreement with pupil ratings on the part of French teachers and with scores obtained on the French version of the word association test, suggests that children whose kindergarten background was full day bilingual have a greater mastery of the French language in grade two than children whose kindergarten background was half day bilingual.

Grade 3 Results

Probably because of further attrition among students in the immersion group who had attended HD kindergarten, the grade 3 HD vs. FD comparison is presented for immersion and seventy-five-minute groups combined. The general trend of these findings is similar to that of the grade 2 findings insofar as the FD group exhibits superior performance on several measures of French proficiency.

The FD kindergarten group gave more paradigmatic responses and semantic clusters on the English word association test than the HD kindergarten group, suggesting, according to Edwards and Casserly, more mature language development. On the French word association test there were larger differences on these measures in favour of the FD group.

The FD kindergarten group were rated higher on rhythm and made fewer grammatical errors compared to the HD group on the English story creation task. On the French story creation task they used more words, more verbs, and a greater variety of verbs, and were rated higher on ease of talking and word choice than the HD group.

The FD group also had a significantly higher IQ score than the HD group, a factor which may have influenced the results. However, one would expect IQ differences to influence performance on the more "academic" English and French standardized achievement tests rather than on the more subtle word association and story creation measures. Edwards and Casserly (1976) conclude that

> the benefits of a full-day Kindergarten program appear to be the slightly more mature language development of children who have had the advantage of both English and French Kindergartens as compared to those who did not.

> Furthermore, it appears that those who receive a basic foundation of both languages in Kindergarten are more apt to remain in the immersion program once they begin it (pp. 354-55).

Conclusion

Certain considerations ought to be borne in mind in considering these results. On the plus side, the FD-HD comparisons were carried out within the same board and are thus not confounded by program and teacher factors to the same extent as across-board comparisons. However, the number of students in the HD kindergarten immersion program is small, and thus comparisons involving this group may be unreliable. Also, the difficulty of drawing inferences regarding the effects of kindergarten program is illustrated by the relative lack of interpretable differences between groups at the grade 1 level where one would have expected differences to have been greatest. It is possible that, as Edwards and Casserly suggest, teacher compensation for the HD group's lack of French at kindergarten may account for these findings, but other undetermined factors may be equally involved. Finally, it should be borne in mind that two factors are confounded in the HD-FD comparisons: one is the extra half day of instruction in the FD program as compared to the HD program; the other is the exposure to French in the FD program as compared to English only in the HD program. It seems reasonable to attribute group differences in French skills to the latter factor rather than to the former.

Bearing these caveats in mind, there is evidence at the grades 2 and 3 levels that students who have experienced a FD bilingual kindergarten program have a somewhat greater facility in French than students tends to manifest itself in the more subtle aspects of French proficiency measured by the Story Creation and Word Association tasks, rather than in the more academic aspects of proficiency measured by the Test de Rendement en Francais.

CHAPTER 4

Comparison of Half-Day French Kindergarten and Half-Day English Kindergarten

In this chapter the effects of entering a grade 1 French immersion program without prior experience of French kindergarten will be further examined. For example, in the initial year of the Wellington County program (Oliver, Brown, & McKenzie, 1975; Oliver, Corlett, & McKenzie, 1976) one group of students entered at the grade 1 level without prior French immersion kindergarten while in the same year a younger group entered French immersion kindergarten. Comparison of these two groups at the grade 1 level permits one to gauge the effects of HD English vs. HD French kindergarten. A similar comparison is possible in a Montreal program where the initial cohort entered grade 1 without prior experience of French kindergarten. Other immersion programs have also started in grade 1 (for example, the Elgin County partial immersion program and the Fredericton total immersion program), and the relative success of these programs compared to those which started in kindergarten can be examined.

The Wellington County Evaluation

The first year of this evaluation involved a comparison between French immersion and regular program students at both grade 1 and kindergarten (HD) levels. The grade 1 students had previously attended an English HD kindergarten. The second year again looked at French immersion grade 1 and kindergarten students in relation to regular program students. The original grade 1 group was not followed through to grade 2 because the board felt that their progress could not be meaningfully assessed since no reference group existed in other early total French immersion programs which had experienced a HD English rather than a HD French kindergarten (Oliver et al., 1976).

The findings at the kindergarten level were similar to those of other HD French kindergarten programs (for example, Barik & Swain, 1975). Oliver et al. (1975) conclude that the Metropolitan Readiness Test results "suggest that after a year spent in a French immersion program the children are as ready to enter an English grade 1 class as children who have spent a year in an English kindergarten" (p. 8).

The scores of the two French immersion cohorts and their comparison groups at the grade 1 level are presented in Table 16. There were significant differences in favour of the comparison groups in both years on the Metropolitan Achievement Test (MAT) total scores, as well as on the three English language arts subtests. However, the mean scores of the second cohort were slightly higher than those for the first cohort, and the F-ratio for immersion-comparison mean differences (adjusted for IQ differences between immersion and comparison groups) on the MAT were considerably higher for the first cohort compared to the second (range, cohort 1: 39-54; cohort 2: 30-37). This suggests that despite the English HD kindergarten the first cohort made less progress in English language arts at the grade 1 level than the second cohort. It should be borne in mind of course that English language arts was not taught to either immersion group at the grade 1 level.

On the French Comprehension Test (FCT) the second cohort performed considerably higher than the first cohort (28 vs. 20). The second cohort is close to the grade 1 norm for the FCT (28.5).

In summary, the evaluation of the Wellington County early immersion program suggests that a HD French kindergarten prior to grade 1 immersion significantly benefits students' French progress at no cost to the development of academic skills in English. These results should be interpreted cautiously, however, because the cohort that began in grade 1 represented the first year of a new program and implementation difficulties may have influenced students' academic performance.

However, two other evaluations also provide some indirect evidence of the benefits of French kindergarten for the development of students' French proficiency.

The Elgin County Evaluation

Barik and Swain (1974) report that students in the Elgin County partial immersion program, which was preceded by a HD English kindergarten, did not perform as well as the comparison group in English language arts until grade 3 or 4, and performed considerably worse in French than students of the same grade level in total immersion programs. Their performance in French was equivalent to that of total immersion students in lower grade levels who had had similar amounts of contact time in French. This performance appears considerably worse than that of students in the current ORCSSB partial immersion program which is preceded by a FD bilingual kindergarten. In the ORCSSB partial immersion program students show little lag in the development of English language skillls and appear to close the gap with early total immersion students in French skills as they progress through the elementary grades (Edwards, McCarrey & Fu, 1980). The score of the Elgin County students on the French Comprehension Test (FCT) at the grade 2 level is 12.5 compared to 25.9 for the ORCSSB program (Barik, 1976; Game, 1979). Obviously, these across-board comparisons must be interpreted cautiously, but the size of the Elgin County-ORCSSB grade 2 difference on the FCT does suggest the importance of French at the kindergarten level.

Table 16

Wellington County Evaluation 1974-75, 1975-76; HD English Kindergarten vs. HD French Kindergarten

Variable	Cohort 1 1974-75		Cohort 2 1975-76	
	Immersion	Comparison	Immersion	Comparison
Otis-Lennon IQ	109	111	111	108
MAT (total raw score)	102	137	107	129
Word Knowledge	22	30	23	28
Word Analysis	25	35	27	33
Reading	16	31	38	39
Mathematics	39	40	38	39
FCT	20		28	

The Fredericton Evaluation

Further indirect evidence for the importance of French at the kindergarten level comes from the evaluation of the early total immersion program in Fredericton, New Brunswick (Gray, 1980; Gray & Cameron, 1980). Because kindergartens are not a part of the New Brunswick public school system, children enter the immersion program in grade 1. English language arts is introduced only in grade 4 and students continue to receive 85 to 90 percent of their instruction in French through grade 6.

The evaluation reports that by grade 6 the immersion students perform at a comparable level to their English-educated peers in English language arts (Gray, 1980). However, concern was expressed at the level of performance in French. On the measures for which comparisons were possible, the grade 6 Fredericton students were performing at an equivalent level to that of grade 5 students in the Ottawa/Carleton area (Swain & Barik, 1977). Gray points out that

> the Fredericton children have an initial disadvantage in relation to the Ottawa area children in that the Ottawa children have had an additional year of exposure to French. The current data indicate that this disadvantage is not easily overcome, and may still be affecting academic achievement in grades five and six. It is interesting that the difference in the performance of the Ottawa and Fredericton children persists in spite of the fact that the Fredericton children receive more French in the upper grades (1980, p. 30).

A follow-up evaluation of the Fredericton program in its fifth year examined the performance of the grades 1 and 2 children in order to assess the stability of the earlier results. In general, the follow-up evaluation found that the results of the grades 1 and 2 students were comparable to those of the previous grades 1 and 2 cohorts despite a somewhat lower mean non-verbal ability level as a result of the increasing range of intellectual abilities of students entering the program in its fifth year. However, what is of interest in the present context are the scores of the "follow-up" Fredericton grades 1 and 2 students on the French Comprehension Test (FCT). The

grade 1 mean was 21.48 and the grade 2 mean 35.82. These compare to test norms of 28.50 (grade 1) and 37.76 (grade 2). Gray and Cameron (1980) conclude that

> These comparisons indicate that at the end of grade two the children in the Fredericton immersion programs are still slightly behind children in other immersion programs in French listening comprehension (p. 6).

In summary, the Fredericton evaluation adds to the evidence from the ORCSSB evaluation (see Chapter 3), as well as from the Wellington County and Elgin County evaluations, that exposure to French at the kindergarten level is important for subsequent achievement in French in early immersion programs.

> Several other evaluations report findings relevant to the effects of different amounts of French at the kindergarten level. The first cohort of students in the evaluation of the Coquitlam total immersion program in B.C. received 80% French in kindergarten and grade 2 and 100% in grade 1, whereas the second cohort received 100% French from kindergarten through grade 2. Both cohorts received 75% French at the grade 3 level. An analysis of covariance was used to compare the end of grade 3 mean scores of these two groups on the Test de Rendement en Francais. Shapson and Kaufman (1978) summarize the findings of this analysis as follows:
>
> The results indicated that Cohort II scored significantly higher than Cohort I, F (1, 60) = 21.3, p .001. One might speculate that this difference is partly attributable to more instructional time in French experienced by Cohort II (i.e. 100% French in kindergarten and Grade Two vs. 80% French in these two grades for Cohort I) (1978, pp. 592-93).

Obviously, however, other factors in addition to the slightly greater time allotment to French in kindergarten and grade 2 might be contributing to the difference between Cohort I and Cohort II.

The evaluation of the Edmonton Public School Board partial immersion program examined the effects of allowing students who had not attended French kindergarten or grade 1 to enter the program at the grade 2 level (Edmonton Public School Board, 1979). The majority of these students attended a six-week catch-up program in the fall. These

students performed less well in French at the grade 2 level, but by grade 3 late-entry students had caught up with their peers in French and also performed equivalently in other academic subjects. These data suggest that immersion students who are highly motivated and who receive special instructional attention can compensate for less exposure to French and catch up with their peers. Thus, we might expect that lack of exposure to French at the kindergarten level need not necessarily result in lower levels of achievement in French if special compensatory steps are taken.

This speculation is supported by the results of a study conducted in Montreal by the Protestant School Board of Greater Montreal (1973) in which no differences were found on either French or English achievement measures between two classes of grade 3 students who had attended HD English kindergarten prior to grade 1 and two classes of students who had attended HD French kindergarten. However, the report points out that

> placing students in immersion at the grade 1 level as opposed to placing them in immersion at kindergarten level probably places a considerably greater degree of stress on them as they have much less time in which to master passive French language skills prior to being obliged to participate actively in that language in school (p. 4).

In summary, although there are exceptions to the trend, there is considerable research evidence that exposure to French at the kindergarten level influences students' subsequent academic achievement in at kindergarten. However, as the Protestant School Board of Greater Montreal suggests, this may be at the cost of considerable stress for the students.

CHAPTER 5

Kindergarten Options for Ethnic Minority Children Prior to French Immersion

In Chapter 3 it was noted that Edwards and Casserly (1971) found that grade 1 Italian-background students who had attended a FD kindergarten performed better on several measures than Italian-background students who had attended a HD kindergarten. However, these differences could not be interpreted as necessarily due to the FD program.

Other studies cast some light on the effects of different kindergarten options for ethnic minority students. The issue is relevant to consider since the performance of ethnic minority students in the ORCSSB partial immersion program was recently the subject of media attention through the release of a report that grades 5 and 6 students from non-English homes in the board's partial immersion program (attended by a large majority of students) were performing considerably below expected levels in English and Mathematics skills (The Citizen, Feb. 4, 1981, p. 3). In the earlier studies carried out by Edwards and Casserly (1976) this trend was not apparent. However, a large majority of ethnic minority students were in the seventy-five-minute French program rather than the early total immersion program. The performance of ethnic minority students in the ORCSSB partial immersion program (instituted in 1975) was not examined in detail by Edwards and his colleagues (Edwards et al., 1980).

Only one study has been carried out in Canada specifically designed to investigate the effects of different bilingual kindergarten options for ethnic minority students. Egyed (1973) compared the progress in kindergarten of three groups of Italian-background students randomly assigned to (1) FD English kindergarten, (2) HD English-HD Italian, (3) HD English - HD French. Using a pre- and post-test design, Egyed reported no significant differences in academic progress between

students in the HD Italian- HD English kindergarten compared to those in the FD English kindergarten. Thus, spending half the school day through Italian did not interfere with students' progress in English.[1]

However, both FD English and HD Italian-HD English groups obtained significantly higher scores than Italian-background students in the HD French-HD English (that is, FD bilingual) kindergarten program. This latter group of students was reported to have made "relatively low gains in auditory psycholinguistic development" (Edwards and Casserly, 1976, p. 248). Edwards and Casserly (1976) suggest that "an all-English kindergarten program would be more beneficial to functional speech development in these children than the current English-French kindergarten program (1976, p. 253).

In reviewing the performance of minority-group children in French immersion, however, Genesee (1976) urges caution in interpreting these results because of the tendency for test results at the kindergarten level to be unreliable. He suggests the need for a well-controlled longitudinal study of the effectiveness of French immersion for ethnic minority children.

One other well-controlled study relevant to the performance of ethnic minority students in bilingual kindergarten programs should be mentioned. This study was carried out by Legaretta (1979) in California with Spanish-background kindergarten children. She compared three Spanish-English bilingual treatments with two English-only treatments for their effects on the development of students' communicative competence in English. The three bilingual treatments were found to be significantly superior to the two English-only treatments in developing English language skills. The most effective program was the one with balanced bilingual usage (HD Spanish, HD English).

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[1]This result is comparable to that of the Italian transitional bilingual program at the kindergarten level investigated by Shapson and Purbhoo (1977). However, the transitional program led into an all-English grade 1 and thus is not considered further.

In conclusion, this brief review of kindergarten options for ethnic minority students illustrates the fact that very little well-controlled research exists on the performance of ethnic minority students in French immersion programs. Egyed's (1973) study suggests that a FD bilingual kindergarten program may be less effective for these students than either a FD English or HD Italian-HD English kindergarten, while the potential effectiveness of this later type of bilingual kindergarten option is supported by Legaretta's (1979) findings. However, until more data is collected on the academic performance of ethnic minority students in French immersion, the merits of different kindergarten options must remain a matter for speculation.

CHAPTER 6

Conclusions

In Chapter 1 it was suggested that there are three basic issues that need to be considered in examining the effects of FD bilingual vs. HD French kindergartens on subsequent academic achievement in French immersion programs. These issues are (1) whether instruction in French at the kindergarten level is important for subsequent French language and other academic achievement; (2) whether instruction in English at the kindergarten level is important for English and other academic achievement; and (3) whether there is any differential effect of various FD vs. HD kindergarten options for students from different socioeconomic or linguistic backgrounds. The conclusions will be reviewed in terms of these three issues.

Importance of French at Kindergarten Level

There were repeated indications in the data examined that exposure to French at the kindergarten level plays a significant role in the subsequent academic achievement of students in French immersion programs. For example, the ORCSSB evaluation (Edwards & Casserly, 1976) reported differences in French language skills at the grades 2 and 3 levels between students who had attended a FD bilingual as compared to a HD English kindergarten. The Wellington County evaluation (Oliver et al., 1975, 1976) reported large differences in French listening comprehension between grade 1 students who had attended a HD French kindergarten and those who had attended a HD English kindergarten. Similarly, grade 2 students in the ORCSSB 50/50 bilingual program who had attended FD bilingual kindergarten obtained a French listing comprehension score about twice as high as grade 2 students in the Elgin County 50/50 bilingual program who had attended a HD English kindergarten. A significant lag in the development of French language

skills also appears to characterize students in the Fredericton early total immersion program who had no exposure to French prior to grade 1.

There were, however, some findings which suggested that lack of exposure to French at the kindergarten level need not necessarily result in lower French achievement. For example, at the grade 1 level in the ORCSSB evaluation there were few differences between HD English and FD bilingual groups, possibly, as Edwards and Casserly (1971) suggest, because of compensatory efforts on the part of teachers. The same factor probably underlies the fact that late-entry students in the Edmonton Public School Board caught up with their peers in French after one or two years. Also, in the Montreal program at the end of grade 3 there were no differences in French or English between students who had attended a HD English compared to HD French kindergarten. In this instance the evaluators emphasized that entering a grade 1 immersion program from an English kindergarten probably placed considerable stress on students.

However, despite these exceptions, the overall trend in the research suggests that exposure to French at the kindergarten level plays an important role in subsequent academic progress in a French immersion program. This conclusion is consistent with more general findings from French immersion research that amount of exposure to French is significantly related to the development of French skills (see, for example, Barik & Swain, 1974). Some proficiency in French at the beginning of grade 1 would intuitively seem to be important because of the introduction of formal academic content at that level.

The implications of this trend in the research findings are that it is important to maintain instruction in French at the kindergarten level prior to French immersion. It is not possible to say whether or not there is a critical amount of exposure to French in kindergarten, for example, whether a quarter-day would be sufficient or whether it is important to maintain a half-day of French at this level. However, based on the findings from French immersion programs in general, as well as those in the present study, one would expect a significant relationship between amount of exposure to French and achievement in

French. Thus, spending all the half-day through French should result in better progress in French than dividing the half-day between French and English.

An obvious consideration here, however, is whether English skills will suffer if there is no exposure to English at the kindergarten level. This issue is considered in the next section.

Importance of English at the Kindergarten Level

The FD bilingual kindergarten assumes that it is important to expose kindergarten children to instruction in both English and French prior to entering a grade 1 immersion or 50/50 bilingual program. This assumption appears suspect at the outset in view of the fact that immersion students' academic skills in English have proved extremely robust in the face of apparent neglect by the school. For example, English academic skills develop quite adequately even when formal English language arts is not introduced until grade 4 (see Gray, 1980). This is obviously due to considerable transfer of academic skills from French to English.

There was no evidence in the comparisons that were possible in the present study that FD bilingual kindergarten resulted in academic advantages in contrast to HD French kindergarten. At the end of HD French kindergarten, students were as ready to enter grade 1 as students in either FD bilingual or HD English kindergarten, and no differences were apparent at the grade 1 level either.

Although these across-board comparisons should be treated cautiously, they are consistent with the findings in virtually all French immersion programs that exposure to English instruction bears little relationship to performance in English academic skills. Also, there have been no indications in any of the large number of evaluations of French immersion programs involving HD French kindergarten that students have suffered as a result of lack of exposure to English instruction in kindergarten.

In short, for the types of students who have been represented in evaluations of French immersion programs to date, there is little

empirical or theoretical support for maintaining a half-day of English instruction at the kindergarten level in addition to the half-day of French instruction. However, this conclusion cannot necessarily be generalized to include those students who have been represented only minimally in evaluations of immersion programs, for example, low socioeconomic status and ethnic minority students. The possibility of differential effects of kindergarten options on students with different background experiences is considered in the next section.

Differential Effects of Kindergarten Options

According to Genesee (1976), the available research evidence would suggest that French immersion is equally appropriate for low socioeconomic and ethnic minority students as for middle-class anglophone research on this issue since a few well-controlled studies exist. The major reason why the performance of low socioeconomic and ethnic minority students has not been examined in more depth is that they have typically not been represented in large numbers in French immersion programs. However, this is currently not the case in the ORCSSB where the vast majority of students enter the immersion (that is, 50/50 bilingual) program.

The one research study which addressed the issue of kindergarten options for Italian ethnic minority students (Egyed, 1973) suggested that a FD bilingual (French-English) program may be less appropriate than other FD options (all English and Italian-English). Clearly, this result should be interpreted cautiously pending further research, but it highlights just how little we know about the possible implications of reducing the pre-immersion kindergarten experience of these students to a half-day, whether in French or English or both. For that matter, there is very little recent research documentation regarding the performance of ethnic minority students in regular English programs involving a HD English kindergarten. Thus, the fact that ethnic minority students in the ORCSSB bilingual program are behind grade level (The Citizen, February 4, 1981) cannot be attributed to the bilingual program since we know very little about the performance of similar students in regular English programs.

The point I wish to make is that there is little evidence for one of the central questions in the FD vs. HD kindergarten issue, namely, whether FD vs. HD kindergarten options prior to French immersion have differential effects on students with different background characteristics. For students who are "at risk" educationally, the provision of an additional half-day of instruction at the kindergarten level may have greater significance for future academic progress than it appears to have for students from middle-class backgrounds.

Similar arguments could be made for the maintenance of FD kindergarten for francophone students. A FD French kindergarten program may be more effective in reducing the risk of assimilation and developing students' French skills than a HD program.

A recommendation which emerges from these considerations is that if future research is undertaken on the effects of FD vs. HD kindergarten, it should focus on the possible differential effects of these

1. Exposure to French at the kindergarten level, whether in FD bilingual or HD French programs, is important for students' subsequent progress in French language skills.

2. For the types of student typically represented in French immersion evaluations, exposure to English at the kindergarten level appears to be relatively unimportant for subsequent academic achievement; in other words, for these students, a FD bilingual kindergarten entails little or no academic advantages compared to a HD French kindergarten.

3. Virtually no researach data exist in regard to possible differential effects of HD vs. FD kindergartens on students with different background characteristics.

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